DEFECT INSPECTION OF EXTREME ULTRAVIOLET LITHOGRAPHY MASKS AND THE LIKE

ABSTRACT OF THE DISCLOSURE

A dark-field imaging method for detecting defects in reflective lithography masks (e.g., extreme ultraviolet (EUV) masks) used, e.g., in processes for the fabrication of microelectronic devices. A mask blank is coated with a photoresist layer having a fluorescent dye incorporated therein. The photoresist layer is exposed to a source of radiation (e.g., EUV radiation or glancing soft X-rays). In areas of the mask blank having defects the combined direct and reflected radiation will be insufficient fully to expose the photoresist layer. After development, photoresist will remain on the mask blank surface in areas corresponding to defects. Illumination with the excitation wavelength of the fluorescent dye reveals the location of any remaining photoresist, which can be detected using an optical microscope, thereby to detect defects in the mask blank.